

r e f o r m **w e e k III**

Applying cost as
an independent variable
techniques to a
commerciality
determination

Facilitator Guide

Acquisition Reform Week III Applying Cost as an Independent Variable Techniques to a Commerciality Determination

Scope of Seminar

Making a FAR Part 12 Commerciality Decision often requires restating agency requirements to match products available on the commercial market. This seminar presents Cost as an Independent Variable (CAIV) technique as a key tool to accomplish the related tradeoffs between performance, cost, schedule and risk which might be necessary to buy a commercial item. Proper adoption of principles associated with CAIV allows for maximum use of commercial items with substantial saving of time and money. The use of market research data in this process is an important included topic. *

Instructions to Facilitators

Each Acquisition Reform Week III seminar takes approximately one and one-half hours to complete. To maximize the potential for participants to gain an overall understanding of the subject, we suggest you hand out presentation materials 2-to-24 hours in advance. If participants read the information before the seminar, the facilitator can conduct a brief recap and then devote a significant portion of the time to practical experience such as exercises, e.g. working through the scenario which demonstrates the principles outlined in the presentation.

As Facilitator you will need a copy of the full package which is detailed below. Participants should receive item #2 in advance, if possible: item #3 should be handed out in the seminar. Items #1 and #4 are for the exclusive use of the Facilitator.

Included in this file are the following:

1. Facilitator Guide.....	1-2
2. Overview and Presentation for Participants	3-34
3. In-Class Exercises	35-39
4. Discussion Templates	40-42

TIP: Print pages in the order noted so you will have one complete package. Then, duplicate individual sections as needed depending on number of participants. This will ensure materials are in correct order and will reduce the risk of the file being too large for computer or printer equipment to handle with ease.

Main Teaching Points

These are the three main teaching points in this seminar. Before concluding the seminar make sure participants understand the following:

1. CAIV purpose and background.
2. The CAIV approach to tradeoffs analysis to optimize commerciality determination.
3. The process of making a commerciality determination.

*This seminar was tailored from materials used in the 3 day Acquisition Document Streamlining Workshop, developed and presented by the BRTRC Institute for HQ Army Materiel Command. For more information please contact (703) 205-1593, or visit our website at: <http://institute.brtrc.com>.

Overview and Presentation for Participants

Acquisition Reform Week III Applying Cost as an Independent Variable Techniques to a Commerciality Determination

Overview

Welcome to the Acquisition Reform Week III seminar, Applying Cost as an Independent Variable (CAIV) Technique to a Commerciality Determination. This session is designed to help participants do the following:

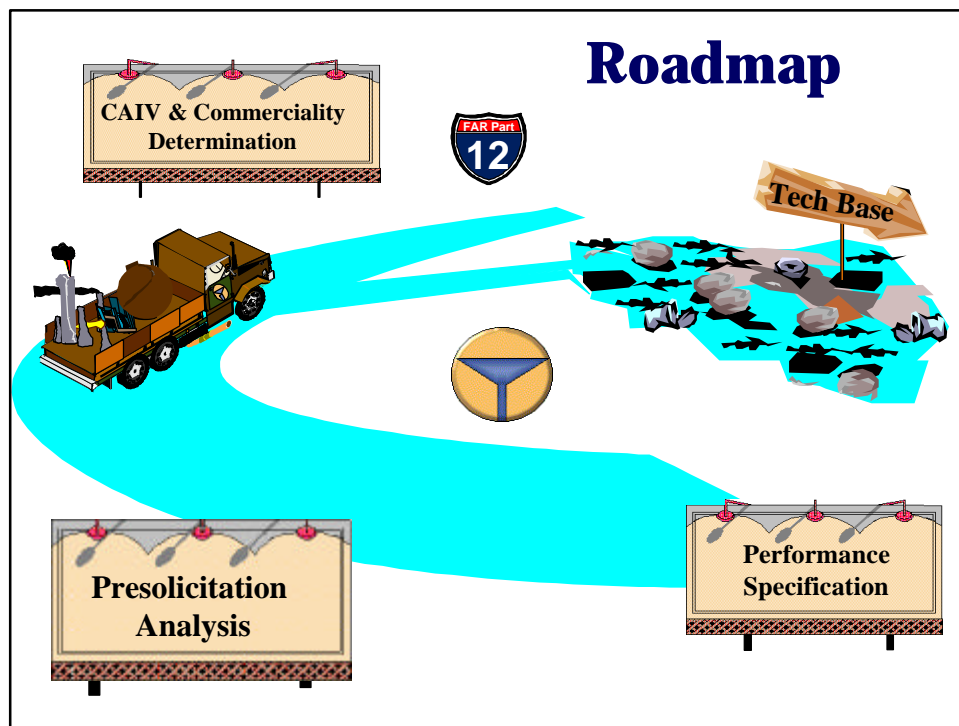
1. Be familiar with CAIV purpose and background.
2. Understand the CAIV approach to tradeoffs analysis to optimize commerciality determination.
3. Understand the process of making a commerciality determination.

Exercise Objective

The in-class exercises will provide participants with a practical understanding of CAIV. Participants will have to evaluate market research in relation to user requirements. Proper application of CAIV principles will result in identification of appropriate cost schedule performance tradeoffs.

Instructions to Participants

Please review the presentation. Be prepared to ask questions and/or participate in a brief recap. A series of in-class exercises is included in the seminar. This practice session is designed to test your understanding of the principles captured in the presentation material and give you hands-on experience when evaluating Cost as an Independent Variable (CAIV) .

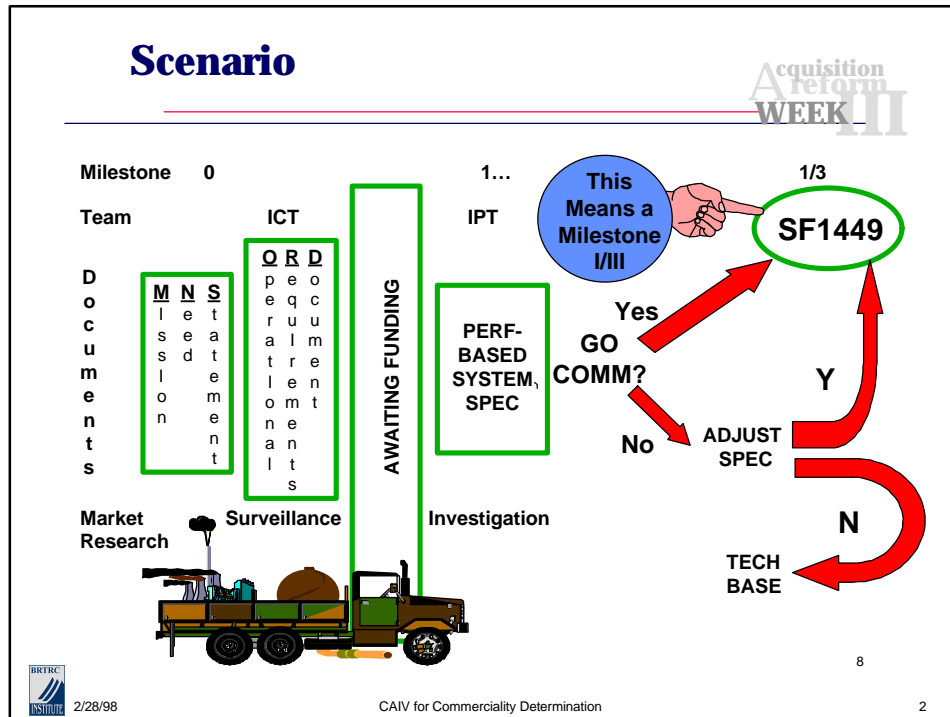


In this block we are going to investigate the concept of Cost As an Independent Variable, or CAIV. We will apply CAIV analysis to help us determine whether a commercial item procurement is a viable option in satisfying our needs.

We will also review the basic principles involved in making a Commerciality Determination, and see how these decisions affect program documentation.

To illustrate the process, we invented a fictional non-major program.

The program is essentially a miniature oil refinery, designed to be carried on a five ton tactical truck--hence the pictures scattered throughout the lecture. But don't worry, you won't have to know anything about oil refining or trucks to learn about CAIV and the commerciality determination.



Here is our scenario. Several manufacturers produce small commercial recyclers that potentially meet DoD's user needs.

Our requirements were developed, but the program wound up just below the funded line for a period of time. Funds have now potentially become available, and we must determine whether or not a system can be fielded by going the commercial route--the only way likely to meet the very restricted resource limits.

A performance spec was drafted and market research performed, and now a commerciality determination needs to be made. If we find that we can meet our needs commercially, we can combine Milestones I through III, draft a commercial solicitation, and buy the system in a timely fashion.

If the decision is other than commercial, we must try to modify the need. If we cannot meet our need with a commercial item, the severe resource constraints prevent us from a full new development program, so the program, at best, goes back into the tech base--or even returns to below the funded line!

What is the Goal?

Acquisition
reform
WEEK III

- **Learn How to**
 - Focus CAIV Analysis
 - Apply Cost Data to CAIV Thresholds
 - Make and Defend a Commerciality Determination
- **Learn About**
 - CAIV Analysis Template
 - Commercial Item Definitions
 - Impact on Acquisition Strategy



2/28/98

CAIV for Commerciality Determination

3

During this seminar you will become familiar with how to:

- Focus CAIV analysis
- Apply cost data to CAIV thresholds
- Make and defend a commerciality decision

You will also learn about:

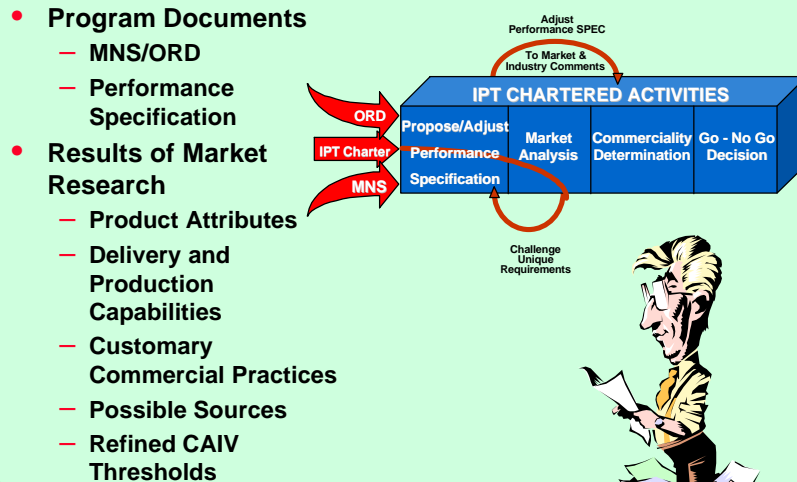
- The CAIV analysis template.
- Commercial item definitions
- The impact of the commerciality determination on the Acquisition Strategy

During the lecture we will use our system example and the results of market research to perform some in-class CAIV analyses on some issues of performance, schedule and operations and support.

You will then combine the market research with the CAIV analysis to make a commerciality determination complete with supporting rationale.

What is the Focus?

Acquisition
Reform
WEEK III



2/28/98

CAIV for Commerciality Determination

4

In order to perform CAIV analysis and make a commerciality determination, we must have the basic program documentation containing the customer's need and the results of market research.

The requirements are stated in the Mission Need Statement (MNS), the Operational Requirements Document (ORD), and the Performance Specification.

We enter the model on the left side with our requirements documents and an IPT charter. We draft a performance spec based on these, and conduct market research. Market research is compared to the need to determine whether the requirement is likely to be satisfied by a commercial item. If the need can be satisfied with a commercial item, we continue.

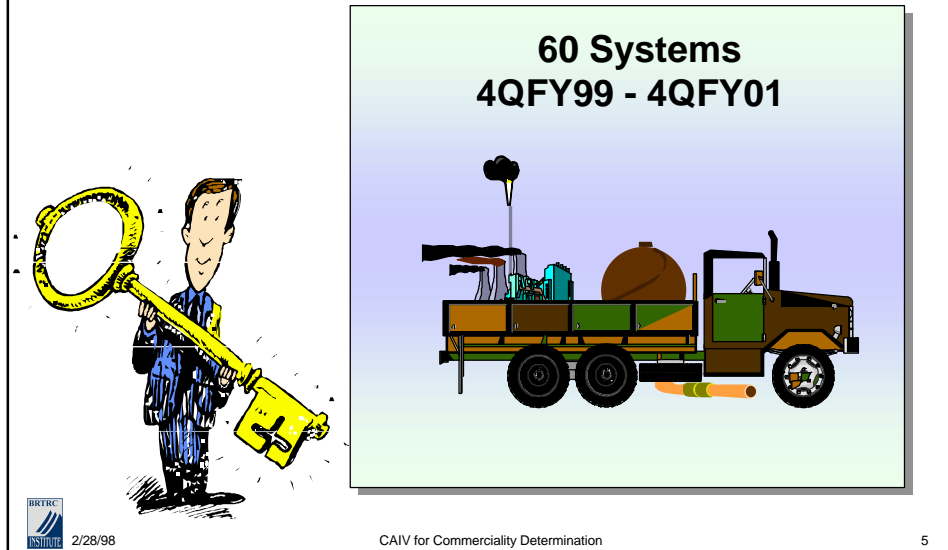
If the need cannot be satisfied by a commercial item, we have two choices:

1. Adjust the need so that we can acquire a commercial item and continue
2. Not adjust the need.

We will see that making a "Go" commerciality decision gives us an excellent streamlining opportunity. Making a "No Go" decision puts our program at risk, and probably sends it back to the tech base.

Requirements - Stated and Implied

Acquisition
Reform
WEEK III



While we talk of requirements, recognize there are two types.

Assume we have identified key characteristics of the agency need that are found in requirements documents such as the MNS, the ORD, and the performance specifications.

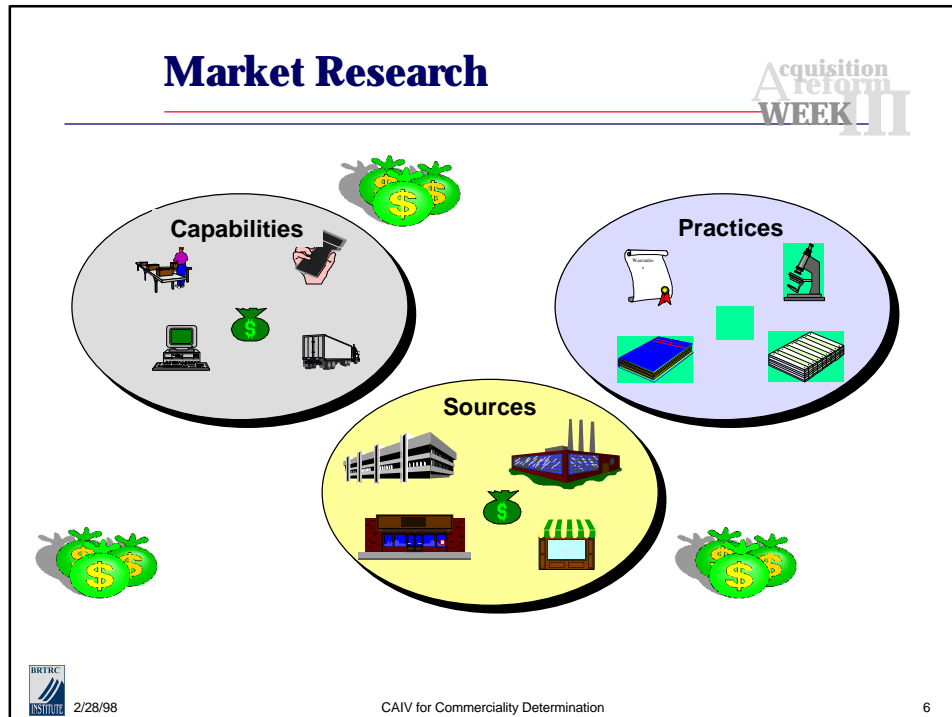
Assume for example, two such requirements are written:

- A requirement for a quantity of 60 systems
- A production contract period of 4QFY99 to 4QFY01

Question: What is an implied (or, derived) requirement based on this?

Answer: A production rate of 2.5/month.

These sorts of parameters start to sharpen the focus of CAIV analysis and the commerciality determination. Not all requirements are explicitly written...read between the lines!



Market research tells what the market place can do.

What are the capabilities of the market place to meet our needs?

What key characteristics can be satisfied by items already available or soon to be available in the commercial market place?

What production, delivery, and support capabilities are there to meet our needs?

What are the standard business practices associated with the sort of item we want?

What warranties and testing practices are offered by potential contractors?

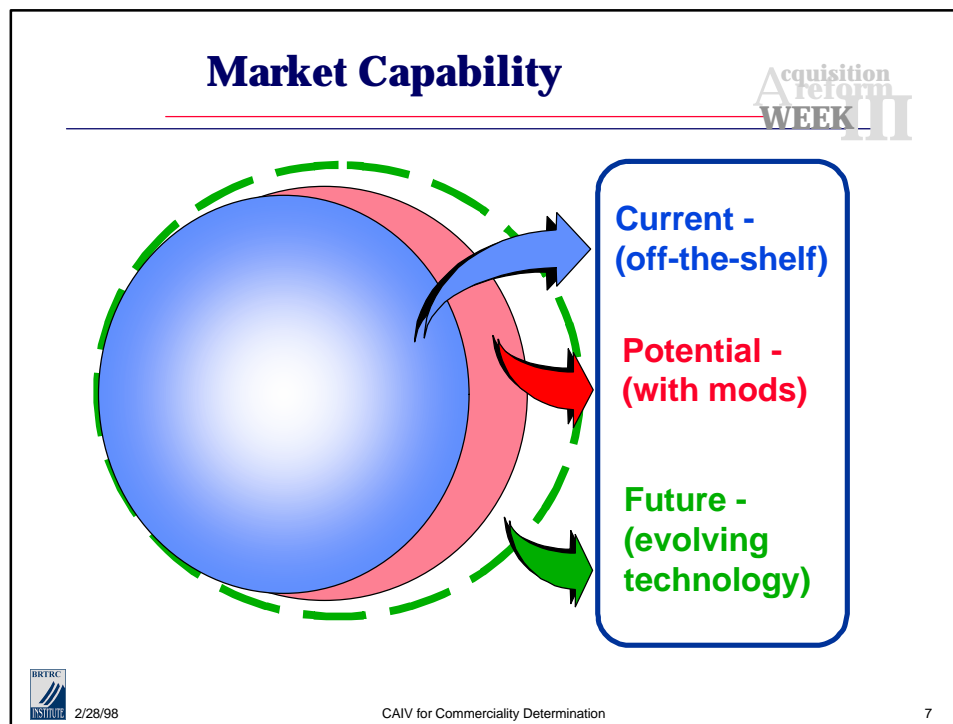
What sources are there to meet our needs?

And, what is their size, their experience - are they proven or new to the business?

Remember, CAIV compares the requirement to the market place with cost as an independent variable.

It follows then that the capabilities of the market place have associated costs - and we have to be able to identify those costs.

That way, if our need exceeds commercial capabilities, we can identify the incremental cost delta between the need and what's available.



The capability of the market place can be divided into three parts:

Current capability - products, processes, services that exist today; off-the-shelf items; proven technologies, etc., which meet our need.

Potential capability - today's products, processes and services to which customary or minor modifications can be applied to meet our need

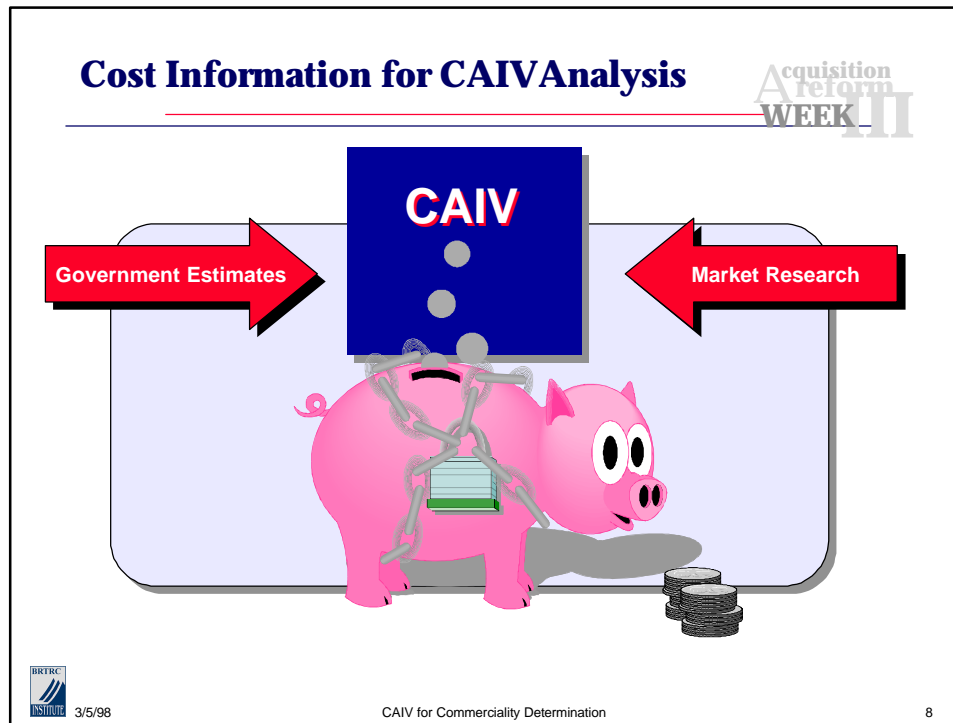
Future capability - product, processes and services that will be available, and will meet our need once the technological evolution is complete.

We must be able to identify the costs associated with going from the current to the potential capability - what are the costs of the modifications needed to make this jump?

We must also be able to identify the costs associated with going from the current, or potential capability, to the future capability - what will it cost to wait for that capability?

Should we invest more now to get there faster?

And what are the performance and schedule impacts of waiting?



CAIV analysis requires that cost information be associated with increments of performance, as well as with schedule and Operations and Support (O&S) issues.

How much does it cost to satisfy the additional requirement between threshold and objective?

How much does it cost to “bridge the gap” between the market capability and the threshold? Or the objective?

This information can be obtained in two ways.

The government can develop the information internally. Government cost estimates can be developed using engineered or parametric models.

Or, information can be obtained from the market place during market research.

Both types of cost estimate have built in errors and even prejudices. Initially, such cost information can have broad tolerances. Consequently, information from both sources should be compared and refined as the project progresses. This is part of the IPT's job.

Money's Still a Problem

Acquisition
Reform
WEEK II



2/28/98

CAIV for Commerciality Determination

9

Why all this emphasis on cost?

We have been in a period of declining resources, both funding and staffing, for several years and there is no change in the situation on the horizon. We will continue in a resource-constrained environment for the foreseeable future.

This resource situation occurs while the Agency has a greater range than ever before in terms of potential missions and adversaries. We're primarily CONUS-based, with potential to deploy almost anywhere in the world. DoD is challenged with missions ranging from providing humanitarian aid to hurricane victims in Florida to peace keeping in Somalia and Bosnia, to full combat as in Desert Storm.

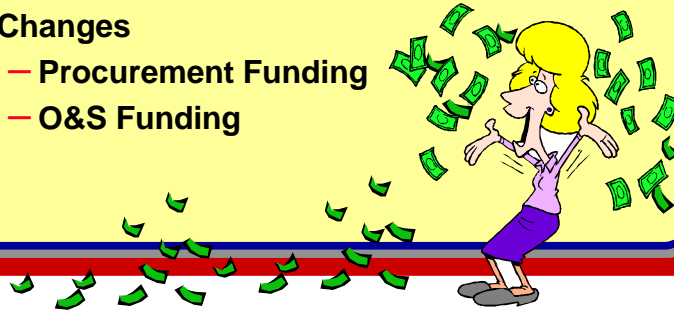
Our acquisition mission is to provide the best possible equipment to our soldiers, at the best possible cost for our taxpayers, whenever it is needed.

This will continue to be our acquisition challenge for the foreseeable future.

Affordability Constraints

Acquisition
Reform
WEEK II

- Initial Programmatics
- Changes
 - Procurement Funding
 - O&S Funding



CAIV for Commerciality Determination

10

Affordability, therefore, is the boundary of CAIV analysis.

CAIV analysis recognizes that the total team, from combat developer to program manager, must be prepared to make tough decisions trading off capability for cost.

Each project has initial programmatics that provide the limits for the effort.

R&D, Procurement and O&S funding are laid out and made available in coordination with the program's milestone schedule.

Changes can and do occur along the way.

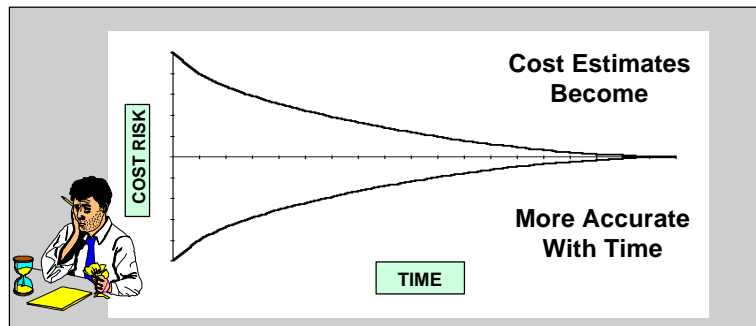
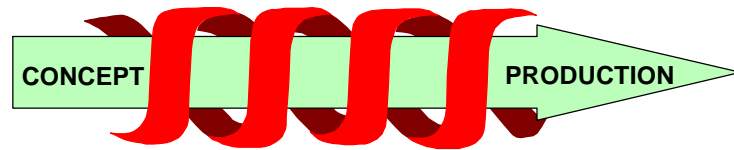
We may get more money - or, more than likely, we may suffer budget cuts.

The old alternative of simply stretching out the program to fit the new funding runs the risk of failing to fill the war-fighting requirement in time, as well as being overcome by technology evolution in the market place.

Using CAIV analysis, we get the data necessary to make better business decisions.

CAIV as a Continuous Process

Acquisition
Reform
WEEK II



2/28/98

CAIV for Commerciality Determination

11

CAIV analysis is a continuous process. It begins with the requirements analysis phase and continues through production and fielding, to look for ways to reduce O & S costs in legacy systems.

It is important to note, however, that cost estimates can have significant variances early in the process.

There is cost uncertainty or cost risk because the final decisions have not yet been made with respect to engineering approaches, manufacturing processes, and component selections.

This is particularly true for new developments. As time passes, and the unknowns get eliminated, cost estimates become more accurate as shown in the chart on the right.

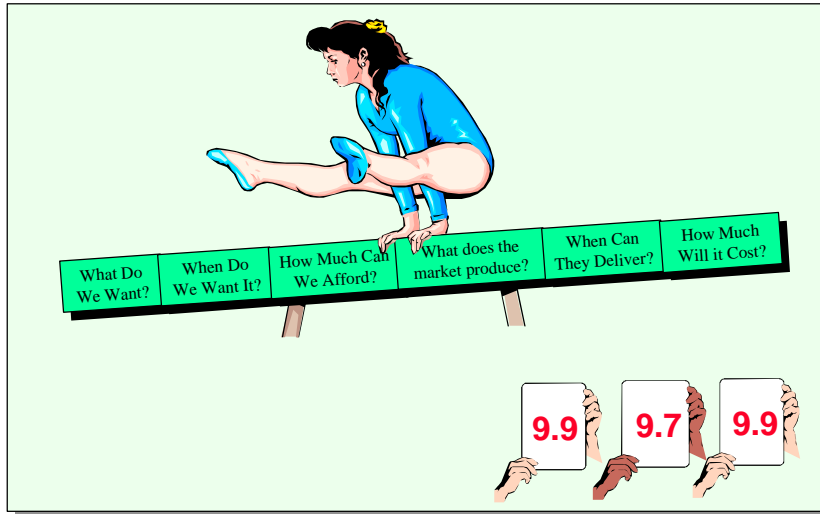
As the acquisition approaches the production decision, a point estimate with high certainty and low risk is reached.

One of the benefits of procuring a commercial item is being further to the right on the cost uncertainty chart.

Even with minor modifications, generally the costs are known with high certainty.

CAIV - A Balancing Act of Tradeoffs

Acquisition
Reform
WEEK II



2/28/98

CAIV for Commerciality Determination

12

DoD must look to the market place as its first choice to meet needs.

What does DoD want?

When do they want it? How much can they afford?

What does the market place have?

When can they deliver it?

How much will it cost?

The balance is influenced by risk.

Generally, the market place presents lower technical, schedule and cost risk.

New development presents higher technical, schedule and cost risk.

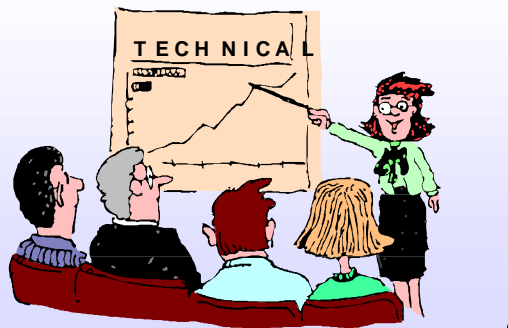
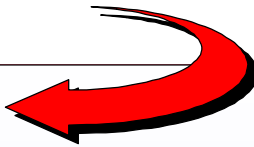
Let's talk about risk for a moment.

CAIV analysis is a balancing act of tradeoffs.

CAIV - Risk Factors

Acquisition
Reform
WEEK III

- Technical
- Schedule
- Cost
- Overall



3/5/98

CAIV for Commerciality Determination

13

The assignment of risk is itself uncertain. Estimating risk is more of an art than a science.

There are the three separate categories: Let's look at the technical first.

Technical risk is a measure of the technology, or technologies, involved in the project. Are they new, unproved technologies and therefore warrant a medium to high risk, or are they old, stable technologies which warrant low risk assignment?

What does low, medium, and high mean? For our purposes a low risk assessment reflects normal business risk. It means that there is a low probability of impacting the current program baseline.

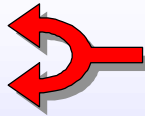
Moderate risk assessment means that increased management attention is required. Rescheduling of deadlines and events may be required to prevent baseline program impact.

A high-level risk assessment means that extraordinary management attention is required. Additional funding and manpower, as well as event rescheduling, may be required to prevent baseline program impact.

CAIV - Risk Factors

Acquisition
Reform
WEEK III

- Technical
- Schedule
- Cost
- Overall



3/5/98

CAIV for Commerciality Determination

14

Schedule risk is a measure of the industry's capability to meet our requirement in a timely fashion.

It can be affected either by manufacturing complexity or a need to exceed production capacity.

Technical risk can also impact on schedule risk.

Cost risk is a measure of the accuracy of the cost estimate.

Established products such as commercial items have low cost risk. The price is well known and not likely to change.

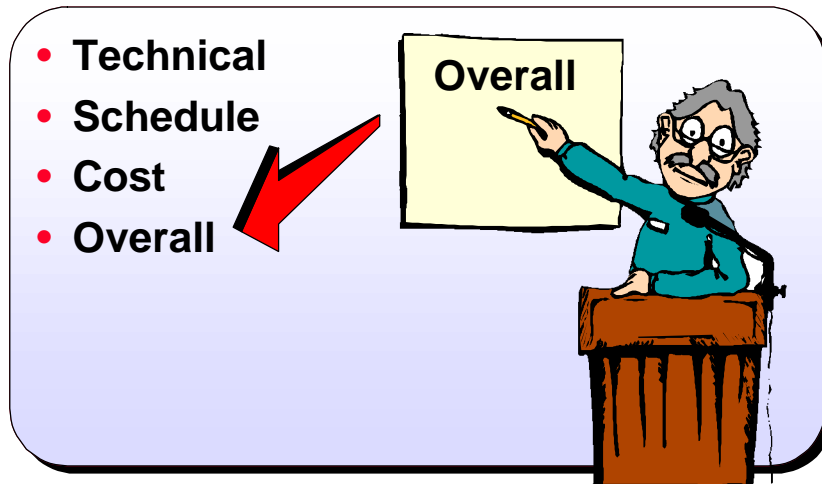
Minor modifications introduce low cost risk whereas major modification carry greater cost risk.

New development have high cost risks because unforeseen changes can overcome even the best planning and cost models.

Risk is first assessed separately in these three categories, then combined into an overall risk assessment.

CAIV - Risk Factors

Acquisition
Reform
WEEK II



3/5/98

CAIV for Commerciality Determination

15

The overall, or program risk, is determined by identifying the risks in the technical, schedule and cost categories, and then applying the “weak link” approach:

If you have a low technical risk, a low cost risk, and a high schedule risk, then your program risk reflects that “weak link”, and is rated as high risk overall.

The product of this operation is an overall assessment of program risk.

We are now ready to put all these pieces together to conduct CAIV analysis.

Using the CAIV Template

Acquisition
Reform
WEEK III

The diagram shows the CAIV Analysis Issue Template with numbered steps 1 through 9 indicating the flow of the analysis:

1. Indicate the type of issue (Performance, Schedule, Life Cycle Cost).
2. Describe the Issue.
3. Fill in the data for Threshold, Objective, Market, Delta, and Cost.
4. Indicate the approximate risk associated with overcoming the difference between market capability and objective (Technical, Schedule, Cost).
5. Based on cost and risk, make a recommendation to either change a requirement to go with the market capability, or spend the incremental cost to achieve the threshold or objective capability.
6. Indicate the overall risk that goes with the recommendation.
7. Finally, record rationale for the choice selected.
8. Overall Risk (L to H scale).
9. Rationale.

At the bottom left is the BRTIC INSTITUTE logo and the date 2/28/98. At the bottom center is the text "CAIV for Commerciality Determination". At the bottom right is the page number 16.

Here is a tool you can use to help focus and organize your IPT's CAIV analysis. It is a CAIV Analysis Issue Template. This is how it works.

1. First indicate what type of issue you are analyzing: performance, schedule or O&S/life cycle (the 3 CAIV categories).
2. Next, provide a short title that describes the issue.
3. Third, fill in the data that describes the relationship between the capabilities of the market place and the threshold and objective requirement. Sometimes the objective and the threshold are the same. If they are different, the objective is the more demanding standard. State the difference in the relationship in the "delta" box, and the incremental cost associated with overcoming that difference in the cost box.
4. Next, indicate the approximate risk associated with overcoming the difference between the market capability and the objective on top, and the market capability and the threshold on the bottom. You do that first for technical risk, then schedule risk, and finally cost risk.
5. Based on the cost and risk, make a recommendation to either change a requirement to go with the market capability, or spend the incremental cost to achieve the threshold or objective capability.
6. Indicate the overall risk that goes with the recommendation, and
7. Finally, record rationale for the choice selected.

In Class Exercise

Acquisition
reform
WEEK III

- Read Scenario
- Complete 2 CAIV Analysis Templates



2/28/98

CAIV for Commerciality Determination

17

Let's work through an in-class exercise with the CAIV analysis templates, to be handed out in class. First, read the scenario on the next page, then complete the first template. Be sure to identify the type of issue: performance, schedule or O&S.

Next give a brief title to the issue.

Then complete the area comparing market capability to the requirement threshold and objective, if different, and the related cost.

After that, complete the risk assessment section. Finally, make your recommendation, complete with an indication of overall risk and your rationale. Complete the same steps for the second template.

In Class Exercise

Acquisition
Reform
WEEK II

- Background
- Market Research



3/5/98

CAIV for Commerciality Determination

18

Scenario:

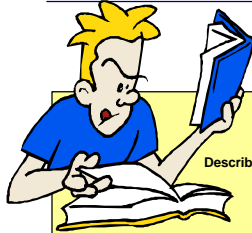
You are a member of an IPT using market research to conduct CAIV analysis on the requirement for BRUT, a fictional non-major system. Two key characteristics of BRUT have to do with self-sustained operations mentioned in paragraph 3.3.4 of the Performance Specification and an aspect of operations in MOPP I-IV protective garments mentioned in paragraph 3.4.2 of the Performance Specification. You have been asked to use CAIV analysis to make a commerciality determination with respect to each characteristic.

Market research:

The current market research suggests the market version of BRUT is available for approximately \$1.2M per unit. A minor modification resulting in a change bearing and lubricants will allow the self-sustained operations of BRUT for 80-100 hours. The estimates increase in the cost of each unit is \$10,000.

In Class Exercise

Acquisition
Reform
WEEK II



Performance		Schedule		Life Cycle Cost	
Describe the Issue:					
Threshold	Objective	Market	Delta	Cost	
Risk Analysis:					
	Technical		Schedule	Cost	
Threshold to Market Capability:	----- L H		----- L H	----- L H	
Objective to Market Capability:	----- L H		----- L H	----- L H	
Recommendation:					
Threshold		Objective		Market Capability	Overall Risk
					----- L H
Rational:					



2/28/98

CAIV for Commerciality Determination

21

A template like the one shown above will be passed out and the exercise will be completed in class. The in-class exercise continues on the next page.

In Class Exercise

Acquisition
Reform
WEEK II



Additional Market Research



3/5/98

CAIV for Commerciality Determination

21

More market research:

The market version has never been used in conditions requiring the wear of MOPP I-IV protective garments, or equivalent, clothing. In order to meet the emplacement, operations, and recover aspect of this requirement, minor modifications can be made to control panels and connectors. Also, additional oversized handles can be added. The total additional cost per unit should be \$5,000. The requirement to maintain BRUT in MOPP I-IV protective garment would call for a major modification. A significant redesign would be necessary that could result in delay and could add 30-50% to the cost of each BRUT.

In Class Exercise

Acquisition
Reform
WEEK II



Performance <input type="text"/>		Schedule <input type="text"/>		Life Cycle Cost <input type="text"/>	
Describe the Issue: _____					
Threshold	Objective	Market	Delta	Cost	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
Risk Analysis:					
Technical		Schedule		Cost	
Threshold to Market Capability:		Threshold to Market Capability:		Threshold to Market Capability:	
L H		L H		L H	
Objective to Market Capability:		Objective to Market Capability:		Objective to Market Capability:	
L H		L H		L H	
Recommendation:					
Threshold <input type="text"/>	Objective <input type="text"/>	Market Capability <input type="text"/>	Overall Risk <input type="text"/>		
Rational: _____			L H		



2/28/98

CAIV for Commerciality Determination

23

You will use a template like this to work through the second issue. As before, you will be asked to identify the type of issue, give it a title, and complete the other sections.

CAIV Summary

Acquisition
Reform
WEEK II

#	Description	Type (Per,Sch,O&S)	Recommendation (Obj,Thr,Mar)	Overall Risk	Cost Increase	Cost Decrease
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
Summary						



3/5/98

CAIV for Commerciality Determination

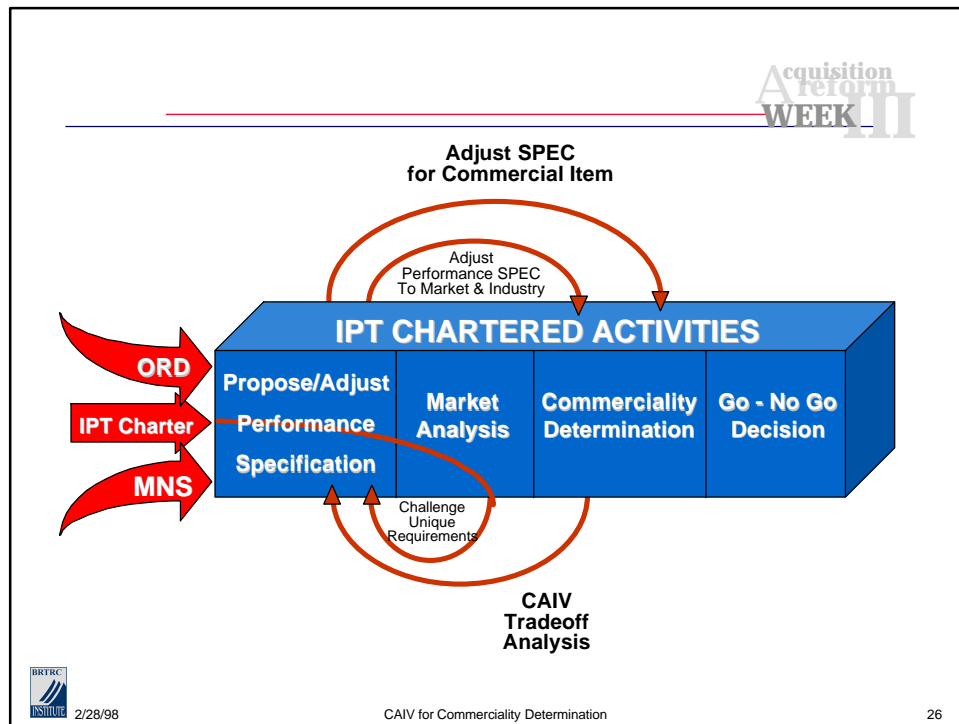
24

After you have completed individual CAIV analysis templates for all the issues on the program, you will transfer the information from them onto a summary sheet that looks like this.

This allows you to look at all the pertinent issues and decisions as a snapshot in time--all on a single piece of paper.

If you get a budget cut, this summary can help steer you to likely areas to re-evaluate earlier decisions. If you get a plus-up, you can see areas where you might best use the new funds.

The summary sheet will be passed out and completed in class.



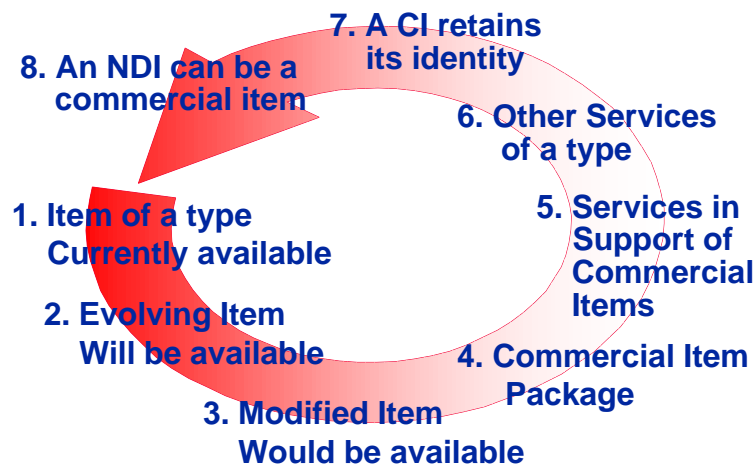
The results achieved using the CAIV Analysis Issue Templates often force us to go back to revisit the need and adjust the specification to fit the market capability and our own available resources.

We have now illustrated the use of CAIV Analysis as a tool to focus on trading off issues of performance, schedule and O&S against affordability constraints in view of market capabilities.

The adjustments to the specification may be necessary for the program to go forward instead of being returned to the Tech Base.

Commercial Item Definitions

Acquisition
Reform
WEEK III



2/28/98

CAIV for Commerciality Determination

27

Now that we've completed our CAIV analyses, let's review the eight parts of the commercial item definition. If you're not familiar with it, you will be amazed at how broad the definition is--many items can be considered commercial under this definition. Turn to the handout entitled FAR Part 2 Definitions of Words and Terms.

This slide summarizes the eight parts of the definition of a commercial item.

Parts (1), (2), and (3) relate to the capability of the product (be it hardware or software) to meet the user's performance needs and the capability of the contractor/industry-sector to meet the user's schedule and quantity needs.

Part (5) reminds us that services in support of a commercial item are also commercial items. Part (4) indicates we can mix and match commercial hardware, software and services and still have a commercial item.


Part (6) establishes that services of a type totally unrelated to parts (1) through (5) are also commercial items if stated conditions are met.

Finally, we see that (7) a commercial item retains its identity as it moves around a contractor's facilities, and that (8) in certain instances a non-developmental item can be a commercial item.


Acquisition
Reform
WEEK III

Non-Developmental Item (NDI)

*....by a Federal
Agency, a state
or local gov't.....*



Any previously
developed item
of supply used
exclusively for
governmental
purposes



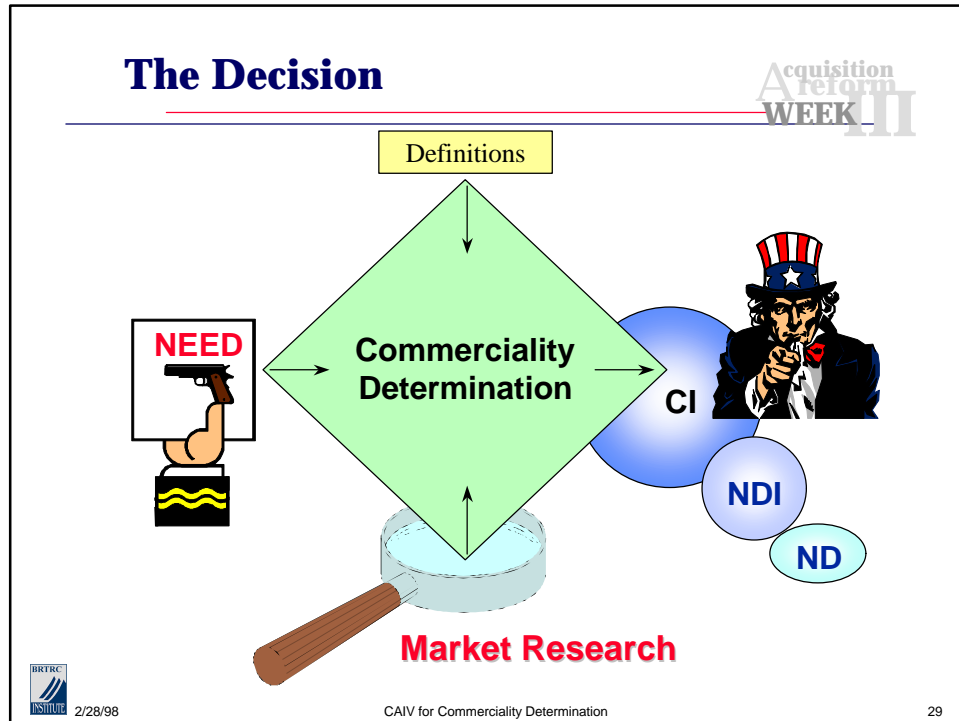
2/28/98

CAIV for Commerciality Determination

28

Non-Developmental Item (NDI) definition has also changed; it is somewhat more restrictive than what we called NDI before the Federal Acquisition Streamlining Act of 1994. It's now a three-part definition:

- a. Any previously developed item used exclusively for governmental purposes by a Federal Agency, state or local government, or a foreign government with which the US has a mutual defense cooperation agreement.
- b. Item like one described in paragraph a above, requiring only minor mod or customary mod to meet requirement.
- c. Any item of supply being produced which does not meet the description in paragraph a because the item is not yet in use.

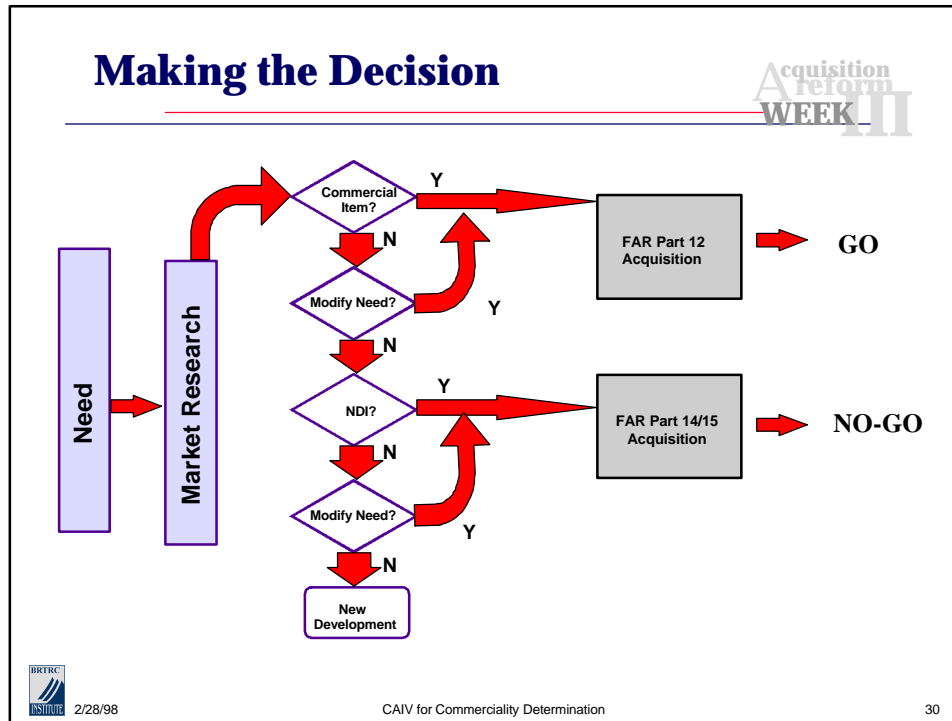


FAR Part 7 mandates the use of commercial and non-developmental items.

We have reviewed all of the key definitions that apply to commercial items in FAR Part 2.

We also defined new development as major modifications to commercial or non-developmental items, or development of new items.

The definitions, coupled with information from our user's need and our market research, will give us the data we need to make a commerciality determination.




Here is a decision tree that helps us walk through the commerciality determination.

1. Compare need to market research
2. Does a commercial item meet the need? If the answer is yes, then a FAR Part 12 acquisition is required.
3. If not, can the need be modified so that a commercial item can meet the need? If the answer is yes, then a FAR Part 12 acquisition is required.
4. If not, can a non-developmental item meet the need? If the answer is yes, then a FAR Part 14 or 15 Acquisition should be used.
5. If not, can the need be modified so that a non-developmental item can meet the need? If the answer is yes, then a FAR Part 14 or 15 Acquisition should be used.
6. If not, then a new development should be started.

Once again, a “GO” decision indicates that we can get into production early, whereas a “NO GO” sends the program back to the Tech Base until the market place can accommodate the program again.

Revisiting the Need



1000 Megaflops or
900 Megaflops?


500 MPH or 475
MPH?


1500 Mile Range
or 1450 Mile
Range?

- Is the need achievable (at any cost)?
- Is the need affordable?
- Will New Development Delay Supporting the Warrior?
- Will new development be overcome by technology?

2000 Pounds
Maximum Weight
or 2025 Pounds
Maximum Weight?

99.99% Accuracy
at 1000 meters or
90.00% Accuracy
at 100 meters?




2/28/98

CAIV for Commerciality Determination

31

When revisiting the need the agency team must keep these key points in mind:

Is the need achievable (at any cost)? Or is the need stated in terms that are either unobtainable or relatively unobtainable, relative to cost?

Is the need affordable? Even if a need is achievable at some cost, it still may be unaffordable. As previously discussed CAIV helps us focus on the budget constraints that bound the need.

Will New Development Delay Supporting the Warrior? If there is significant schedule risk in a new development, will the warfighter suffer when optimistic estimates fall far short of reality?

Will new development be overcome by technology? During the time taken for new development, technology continues to evolve. Will the agency team gain or lose on the pace of technology?

Here some examples of revisiting the need? When is enough enough? Each must be weighed on a case by case basis.

Preparing Rationale

Acquisition
reform
WEEK III

Commercial Item Decision

- Key requirements can be met with a commercial item
- Schedule can be met by a commercial item
- Commercial item is only affordable item
- Commercial item will allow keeping pace with technology evolution



New Development Decision

- Key requirements cannot be met with a commercial item
- Schedule can be met by new development
- New development is affordable
- New development will not lose pace with technology evolution



2/28/98

CAIV for Commerciality Determination

32

If your decision is to buy a Commercial Item, your rationale should be based on the finding that;

- All, or at least key requirements can be met with a commercial item
- The production schedule and support can be met by the commercial sector
- The commercial item is affordable and buying the commercial item will allow keeping pace with technology evolution.

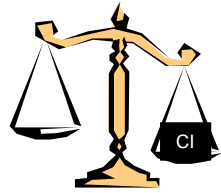
If, on the other hand, your recommendation is to go with a new development, your rationale should be based on the finding that:

- Key requirements cannot be met with a commercial item
- Schedule can be met
- New development is affordable
- The new development will not be overtaken by evolving technology

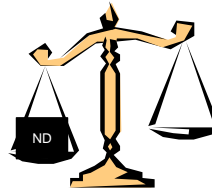
Choosing new development for a non-major program may be the same as a “STOP” decision, either returning the program to the Tech Base until the market place can accommodate it, or the importance of the program is increased.

Impact on Acquisition Strategy

Acquisition
Reform
WEEK III



- Reduce Cost
- Reduce Schedule
- Reduce Risk
- May Adjust Requirement



- Increase Cost
- Increase Schedule
- Increase Risk
- May Meet Full Requirement



2/28/98

CAIV for Commerciality Determination

33

The decision impacts the acquisition strategy as follows:

A commercial item acquisition strategy generally has lower overall cost, shorter schedule, and lower technical, schedule and cost risk.

There may be minor modifications required but the associated risk is lower than that incurred with a new development.

The commercial solution may call for revisiting the need to determine whether the requirement can be changed to meet affordability constraints and schedule.

A new development, by its very nature, generally costs more, takes longer and has higher technical, schedule and cost risk.

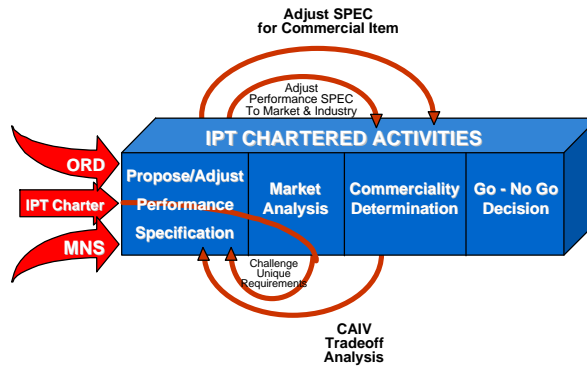
Often, optimism prevails in cost models and milestones, and then unforeseen problems or changes to the requirement result in delays and cost overruns.

Eventually, the full requirement may be met but sometimes at the risk of fielding old technology overcome by rapid change in the commercial market place.

Summary

Acquisition
reform
WEEK III

- Performance Specifications Drives The Acquisition
- Compare Requirements to the Commercial Market Place
- Use CAIV to Trade-off Performance and/or Schedule within Affordability Constraints
- Make Commerciality Determination



2/28/98

CAIV for Commerciality Determination

34

In summary:

The system performance specification drives the acquisition.

The requirements contained in it must be compared to the capabilities of the commercial market place, which is given priority in meeting requirements.

Where there are differences, use CAIV analysis to trade-off performance and/or schedule within affordability constraints considering risk.

Finally, you must make a Commerciality Determination which becomes the basis for your final acquisition strategy.

Requirements, market research, analysis and decision lead to a turn in the road either back to the Tech Base or to commercial item acquisition, FAR Part 12.

D i s c u s s i o n / E x e r c i s e T a s k s

CA I V for
Com m e r c i a l i t y
D e t e r m i n a t i o n

A c q u i s i t i o n

R e f o r m

W e e k

Three vertical gray bars of increasing height are positioned at the bottom of the page, corresponding to the letters W, e, and k of the word 'Week'.

HANDOUT

FEDERAL ACQUISITION REGULATION PART 2-DEFINITIONS OF WORDS AND TERMS

2.101 Definition.

Commercial component means any component that is a commercial item.

Commercial item means ---

- a) Any item, other than real property, that is of a type customarily used for nongovernmental purpose and that ---
 - (1) has been sold, leased, or licensed to the general public; or,
 - (2) has been offered for sale, lease, or license to the general public;
- b) Any item that evolved from an item described in paragraph (a) of this definition through advances in technology or performance and that is not yet available in the commercial marketplace, but will be available in the commercial marketplace in time to satisfy the delivery requirements under a Government solicitation;
- c) Any item that would satisfy a criterion expressed in paragraphs (a) or (b) of this definition, but for ---
 - (1) Modification of a type customarily available in the commercial marketplace; or
 - (2) Minor modifications of a type not customarily available in the commercial marketplace made to meet Federal Government requirements. "Minor" modifications means modifications that do not significantly alter the nongovernmental function or essential physical characteristics of an item or component, or change the purpose of a process. Factors to be considered in determining whether a modification is minor include the value and size of the modification and the comparative value and size of the final product. Dollar values and percentages may be used as guideposts, but are not conclusive evidence that a modification is minor;
- d) Any combination of items meeting the requirements of paragraph (a), (b), (c), or (e) of this definition that are of a type customarily combined and sold in combination to the general public;
- e) Installation services, maintenance services, repair services, training services, and other services if such services are procured for support of an item referred to in paragraphs (a), (b), (c), or (d) of this definition, and if the source of such services ---
 - (1) Offers such services to the general public and the Federal Government contemporaneously and under similar terms and conditions; and

- (2) Offers to use the same work force for providing the Federal Government with such services uses for providing such services to the general public;
- (f) Services of a type offered and sold competitively in substantial quantities in the commercial marketplace based on established catalog or market price for specific tasks performed under standard commercial terms and conditions. This does not include services that are sold based on hourly rates without and established catalog or market price for a specific services performed;
- (g) Any item, combination of items, or services referred to in paragraphs (a) through (f), notwithstanding the fact that the item, combination of items, or service is transferred between or among separate divisions, subsidiaries or affiliates of a contractor; or
- (h) A nondevelopmental item, if the procuring agency determines the item was developed exclusively at private expense and sold in substantial quantities, on a competitive basis, to multiply State and local governments.

Component means any item supplied to the Federal Government as part of an end item or of another component.

Nondevelopmental item means ---

- a) Any previously developed item of supply used exclusively for governmental purposes by a Federal agency, a State or local government, or a foreign government with which the United States has a mutual defense cooperation agreement;
- b) Any item described in paragraph (a), of this definition that requires only minor modification or modifications of a type customarily available in the commercial marketplace in order to meet the requirements of the procuring department or agency; or
- c) Any item of a supply being produced that dose not meet the requirements paragraph (a) or (b) solely because the item is not yet in use.

* * * * *

* *

CAIV Analysis Issue Template #1

Performance Schedule Life Cycle Cost

Describe the Issue:

Threshold	Objective	Market	Delta	Cost
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Risk Analysis:

	<u>Technical</u>	<u>Schedule</u>	<u>Cost</u>
Threshold to Market Capability:	----- ----- L H	----- ----- L H	----- ----- L H
Objective to Market Capability:	----- ----- L H	----- ----- L H	----- ----- L H

Recommendation:

			<u>Overall Risk</u>
Threshold	<input type="text"/>	Objective	<input type="text"/>
		Market Capability	<input type="text"/>
			----- ----- L H

Rationale:

CAIV Analysis Issue Template #2

Performance Schedule Life Cycle Cost

Describe the Issue:

Threshold	Objective	Market	Delta	Cost
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Risk Analysis:

	<u>Technical</u>	<u>Schedule</u>	<u>Cost</u>
Threshold to Market Capability:	----- ----- L H	----- ----- L H	----- ----- L H
Objective to Market Capability:	----- ----- L H	----- ----- L H	----- ----- L H

Recommendation:

			<u>Overall Risk</u>
Threshold	<input type="text"/>	Objective	<input type="text"/>
		Market Capability	<input type="text"/>
			----- ----- L H

Rationale:

CAIV Analysis Summary Template

#	Description	Type (Per, Sch, O&S)	Recommendation (Thr, Obj, Mar Cap)	Overall Risk	Cost Increase	Cost Decrease
1						
2						
3						
4						
5						
6						
7						
8						
9						
	Summary					

acquisition

r e f o r m

W e e k

S o l u t i o n s

C A I V

f o r

C o m m e r c i a l i t y

D e t e r m i n a t i o n

Solution to CAIV Analysis Template #1

	Performance	<div style="border: 1px solid black; padding: 2px 10px;">X</div>	Schedule	<div style="border: 1px solid black; padding: 2px 10px;"></div>	Life Cycle Cost	<div style="border: 1px solid black; padding: 2px 10px;"></div>
Describe the Issue:	<u>Self-sustained operations</u>					
	Threshold	Objective	Market	Delta	Cost	
		80 hrs	75	5	\$10K	
	80 hrs		75	5	\$10K	
Analysis:		Technical		Schedule		C
Related to Market Capability:		---X--- L H		---X--- L H		---X--- L
Relative to Market Capability:		---X--- L H		---X--- L H		---X--- L
Recommendation:						Over:
	Threshold	<div style="border: 1px solid black; padding: 2px 10px;">X</div>	Objective	<div style="border: 1px solid black; padding: 2px 10px;">X</div>	Market Capability	<div style="border: 1px solid black; padding: 2px 10px;"></div>
						---X--- L
Rational:	<u>Commercial item with minor mod can meet user requirement</u>					

Solution to CAIV Analysis Template #2

	Performance	<div style="border: 1px solid black; padding: 2px;">X</div>	Schedule	<div style="border: 1px solid black; padding: 2px;"></div>	Life Cycle Cost	<div style="border: 1px solid black; padding: 2px;"></div>
Describe the Issue:	<u>Operations in MOPP IV</u>					
	Threshold	Objective	Market	Delta	Cost	
		E,O,M,R	E,O,R	M	\$600K	
	E,O,M,R		E,O,R	M	\$600K	
Analysis:		Technical		Schedule		Cost
to Market Capability:		---- ---X L H		---- ---X L H		---- ---> L
to Market Capability:		---- ---X L H		---- ---X L H		---- ---> L
Conclusion:						Overall R
	Threshold		Objective		Market Capability	X ---- ---> L
Rational:	<u>Major mod is too expensive and risky - - reduce requirement</u>					

CAIV Analysis Summary Template Solution

#	Description	Type (Per, Sch, O&S)	Recommendation (Thr, Obj, Mar Cap)	Overall Risk	Cost Increase	Cost Decrease
1	Self sustained operations	Performance	Thr, Obj	Low	10K	
2	Operations in MOPP I-IV	Performance	Mar Cap	Low	5K	
3						
4						
5						
6						
7						
8						
9						
10						
11						
	Summary				\$15K	\$0